WHAT IS CLAIMED IS:

1. A micro-relay comprising:

a first substrate having stationary contacts and a stationary electrode;

a second substrate arranged so as to face the first substrate; and

a movable plate arranged between the first and second substrates,

the movable plate having a frame and a movable portion,

the frame being sandwiched between the first and second substrates to realize a hermetical sealed structure,

the movable portion having a movable electrode facing the stationary electrode, and a movable contact facing the stationary contacts,

the movable portion moving between the first and second substrates due to electrostatic attraction that develops between the movable electrode and the stationary electrode.

2. The micro-relay as claimed in claim 1, wherein the stationary electrode of the first substrate is higher than the stationary contacts.

3. The micro-relay as claimed in claim 1, wherein the stationary contact has a cantilever structure.

4. The micro-relay as claimed in claim 1, wherein the movable portion has multiple movable contacts, and stationary contacts have branch portions that are contactable to the multiple movable contacts.

5. The micro-relay as claimed in claim 1, wherein the movable portion has multiple movable

contacts, and the substrate has stationary contacts that are contactable to the multiple movable contacts and are provided independently.

6. The micro-relay as claimed in claim 1, wherein the substrate has through holes via which interconnection lines extending from the first substrate are extracted to an outside of the micro-relay.

7. The micro-relay as claimed in claim 1, wherein the substrate has through holes via which interconnection lines extending from the movable plate are extracted to an outside of the micro-relay.

8. The micro-relay as claimed in claim 1, wherein interconnection lines extending from the substrate to an outside of the micro-relay are flush with a surface of the first substrate.

9. The micro-relay as claimed in claim 1, wherein the movable portion is coupled to the frame by elastically deformable members.

10. The micro-relay as claimed in claim 1, wherein the movable portion is coupled to the frame by hinge springs.

11. The micro-relay as claimed in claim 1, wherein the movable portion is coupled to the frame by hinge springs arranged symmetrically.

12. The micro-relay as claimed in claim 1, wherein:

the movable portion is coupled to the frame by hinge springs; and

one of the hinge springs has a spring constant

different from that of another one of the hinge springs that is located so as to face said one of the hinge springs.

13. The micro-relay as claimed in claim 1, wherein:

the movable portion is coupled to the frame by hinge springs connected to a first side of the frame and hinge springs connected to a second side of the frame; and

the hinge springs connected to the first side of the frame have a spring constant different from that of the hinge springs connected to the second side of the frame.

14. The micro-relay as claimed in claim 1, wherein the movable portion is coupled to the frame by hinge springs that are thinner than the frame and the movable portion.

15. The micro-relay as claimed in claim 1, wherein at least one of the frame and the movable portion has a stopper that restricts in-plane movement of the movable portion.

16. The micro-relay as claimed in claim 1, further comprising a discharge element connected to at least one of the movable portion and the first substrate.

17. The micro-relay as claimed in claim 1, further comprising a discharge resistor connected to at least one of the movable portion and the first substrate.

18. The micro-relay as claimed in claim 1, wherein the movable portion has protrusions that

prevent the movable portion from sticking to the first substrate.

19. The micro-relay as claimed in claim 1, wherein the movable portion has protrusions that prevent the movable portion from sticking to the first substrate and also serve as discharge elements.

20. The micro-relay as claimed in claim 1, further comprising a spacer via which the frame is sandwiched between the first and second substrates.

21. The micro-relay as claimed in claim 1, further comprising a spacer via which the frame is sandwiched between the first and second substrates, wherein the spacer comprises polysilicon or metal.

22. The micro-relay as claimed in claim 1, wherein the second substrate has a flat plate shape.

23. The micro-relay as claimed in claim 1, wherein the second substrate has a cavity facing the movable plate.

24. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary contact facing the movable contact.

25. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary contact that is in contact with the movable contact in the absence of electrostatic attraction.

26. The micro-relay as claimed in claim 25, wherein the stationary contact of the second substrate is grounded and the stationary contacts of the first substrate are for use in signal transmission.

27. The micro-relay as claimed in claim 1, wherein the second substrate has stationary electrodes that face the movable contact.

28. The micro-relay as claimed in claim 1, wherein the second substrate has stationary electrodes that are in contact with the movable contact in the absence of electrostatic attraction.

29. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary electrode that faces the movable electrode.

30. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary electrode that faces the movable electrode, and a stationary contact that faces the movable contact.

31. The micro-relay as claimed in claim 1, wherein:

the second substrate has a stationary electrode that faces the movable electrode, and a stationary contact that faces the movable contact; and

the movable contact is separated from the stationary contacts of the first and second substrates in the absence of electrostatic attraction.

32. The micro-relay as claimed in claim 1, wherein:

the second substrate has a stationary electrode that faces the movable electrode, and a stationary contact that faces the movable contact;

the movable contact is separated from the stationary contacts of the first and second substrates in the absence of electrostatic attraction; and

the movable contact is brought into contact with

the stationary electrode of the second substrate or the stationary contacts of the first substrate due to electrostatic attraction.

33. The micro-relay as claimed in claim 1, wherein:

the second substrate has a stationary electrode that faces the movable electrode, and stationary contacts that face the movable contact; and

the movable contact is separated from the stationary contacts of the first and second substrates in the absence of electrostatic attraction.

34. The micro-relay as claimed in claim 1, wherein the stationary contacts of the first substrate are for use in signal transmission, and the stationary contacts of the second substrate are for use in signal transmission.

35. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary electrode, and an interconnection line extending from the stationary electrode of the second substrate is extracted to an outside of the micro-relay via a through hole formed in the second substrate.

36. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary contact facing the movable contact, wherein an interconnection line extending from the stationary contact is extracted to an outside of the second substrate via a through hole formed in the second substrate.

37. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary contact facing the movable contact, and the movable plate has protrusions that prevent the movable portion from

sticking to the second substrate.

38. The micro-relay as claimed in claim 1, wherein the second substrate has a stationary contact facing the movable contact, and the movable plate has protrusions that prevent the movable portion from sticking to the first and second substrates.

39. The micro-relay as claimed in claim 1, wherein:

the second substrate has a stationary electrode that faces the movable electrode, and a stationary contact that faces the movable contact; and

interconnection lines common to the first and second substrates and the movable plate are provided on side surfaces of the first and second substrates and the movable plate in the form of a groove.

40. The micro-relay as claimed in claim 1, wherein the frame has a thickness that defines spaces between the movable plate and the first stationary contact and between the movable plate and the second stationary contact.

41. The micro-relay as claimed in claim 1, further comprising a base substrate that supports the first substrate.

42. The micro-relay as claimed in claim 1, further comprising a base substrate that supports the first substrate, and members that connect the movable electrode and the stationary electrode to pads formed on the base substrate.

43. The micro-relay as claimed in claim 1, further comprising a base substrate that supports the first substrate, members that connect the movable

electrode and the stationary electrode to pads formed on the base substrate, and resin that covers the first and second substrates and the movable plate.

44. The micro-relay as claimed in claim 1, wherein the frame has a protrusion and the movable portion has a counterpart recess.

45. The micro-relay as claimed in claim 1, wherein the movable portion has a protrusion and the frame has a counterpart recess.

46. The micro-relay as claimed in claim 1, wherein the movable portion and the frame have an identical thickness.

47. The micro-relay as claimed in claim 1, wherein the movable portion is thinner than the frame.

48. The micro-relay as claimed in claim 1, wherein the first substrate has a first portion on which the stationary contacts and the stationary electrodes are provided, and a second peripheral portion, the first portion being lower than the second peripheral portion.

49. A micro-relay comprising:

a first substrate having stationary contacts and a stationary electrode;

a second substrate arranged so as to form a cavity in collaboration with the first substrate; and

a movable plate arranged between the first and second substrates,

the movable plate having a frame and multiple movable portions,

the frame being sandwiched between the first and second substrates so that an internal space can be

hermetically sealed,

each of the movable portions having a movable electrode facing the stationary electrode, and a movable contact facing corresponding ones of the stationary contacts,

each of the movable portions moving between the first and second substrates due to electrostatic attraction that develops between the movable electrode and the stationary electrode.

50. The micro-relay as claimed in claim 49, wherein the multiple movable portions are electrically connected to each other, and the stationary electrode has portions that are equal in number to the multiple movable portions and are electrically isolated from each other.

51. The micro-relay as claimed in claim 49, wherein the multiple movable portions are electrically isolated from each other, and the stationary electrode has portions that are equal in number to the multiple movable portions and are electrically connected to each other.

52. The micro-relay as claimed in claim 49, wherein the multiple movable portions are electrically isolated from each other, and the stationary electrode has a size so as to face all of the multiple movable portions.

53. The micro-relay as claimed in claim 49, the second substrate has a cavity facing the movable plate.

54. The micro-relay as claimed in claim 49, wherein the multiple movable portions are arranged side by side.

55. The micro-relay as claimed in claim 49, wherein the stationary electrodes on the first substrate are arranged in line.

56. The micro-relay as claimed in claim 49, wherein an common line extending from the stationary electrodes on the first substrate is extracted to an outside of the micro-relay via a through hole.

57. The micro-relay as claimed in claim 49, wherein an common line extending from the stationary electrodes on the first substrate is extracted to an outside of the micro-relay via a through hole equally separated from the stationary electrodes.

58. The micro-relay as claimed in claim 49, wherein an common line extending from the stationary electrodes on the first substrate is extracted to an outside of the micro-relay via a through hole unequally separated from the stationary electrodes.

59. A method of fabricating a micro-relay comprising the steps of:

forming a first substrate having stationary contacts and a stationary electrode;

forming a second substrate;

forming a movable plate having a frame and a movable portion movably supported by the frame, the movable portion having a movable electrode and a movable contact; and

joining the movable plate and the first and second substrates.

60. The method as claimed in claim 59, wherein the step of joining is carried out in a pressure-reduced atmosphere.

61. The method as claimed in claim 59, wherein the step of joining is carried out in an inactive gas atmosphere.

62. The method as claimed in claim 59, wherein the step of forming the second substrate forms a stationary contact contactable to the movable contact.

63. The method as claimed in claim 59, wherein the step of forming the second substrate forms a stationary electrode facing the movable electrode.

64. The method as claimed in claim 59, wherein the step of forming the second substrate forms a cavity facing the movable plate.

65. A method of fabricating a micro-relay comprising the steps of:

patterning an SOI substrate so that a cavity is formed in an insulation layer of the SOI substrate;

etching an active layer of the SOI substrate to define a shape of a movable plate;

forming an insulation film on the active layer that has been etched;

forming a movable contact on the insulation film; and

etching a peripheral portion of the active layer so that an integrated body suitable for the movable plate supported by a stationary electrode of the micro-relay can be formed.

66. The method as claimed in claim 65, further comprising a step of attaching another substrate to the integrated body by anodic bonding so that a hermetically sealed structure can be defined.

67. A method of fabricating a micro-relay

comprising the steps of:

forming an oxide film on an SOI substrate;

joining a cap substrate having a cavity to the SOI substrate on which the oxide film is formed;

removing a supporting layer of the SOI substrate;

forming a movable contact on an exposed oxide layer;

etching the SOI substrate to define a movable plate having a movable portion of the micro-relay integrally formed with the cap substrate; and

joining a stationary substrate to the movable plate, the stationary substrate having a recess on which a stationary electrode and stationary contacts are provided.